

ABSTRACT

A method of making beams, clamps and other structures by curing a polymer containing a magnetostrictive material. A magnetostrictive material like TERFENOL-D (TM) is placed in a polymer. This mixture is put onto a slide in a film. The mixture is cured by UV light (or other means) so that it cross-links. A second layer of polymer with no magnetostrictive material can be cured on top of the first layer. This leads to a beam structure which exhibits a bending moment in an applied magnetic field. By aligning the magnetostrictive particles before curing with a magnetic field, a beam or other structure can be produced with aligned particles. A mask can be used to selectively cure regions where the magnetostrictive particles have different alignments on the same layer. It is possible to build up multiple layer structures with layers of magnetostrictive particles aligned in different directions.